

**ERGONOMIC HOPPER HOLDER*****FIELD OF THE INVENTION***

The present invention relates generally to pneumatic  
5 spray application equipment. The invention relates  
specifically to an ergonomic hopper holder for use with  
pneumatic spray application equipment.

***BACKGROUND OF THE INVENTION***

10 Pneumatic spray application equipment is well known,  
and has enjoyed wide commercial success particularly in the  
construction trades. Specifically, such equipment is  
commonly used by interior finishing artisans for rapid and  
uniform deposition of textured ceiling material onto bare  
15 ceiling surfaces and the like.

Typically, spray application equipment consists of a  
source of pressurized air, a pressurized air conduit or  
line coupled to the source, a spray gun pneumatically  
coupled to the air line, and a supply hopper coupled to the  
20 gun which holds and contains material to be sprayed and  
deposited by the artisan. Examples of such equipment,  
accessories therefor, and related devices are disclosed in  
U.S. Pat. Nos.: 3,945,571 issued to Rash; 4,364,521 issued  
to Stankowitz; 4,511,063 issued to Krause, et al.;

4,863,104 issued to Masterson; 4,948,054 issued to Mills;  
5,415,351 issued to Otto, et al.; 5,727,736 issued to  
Tryon; and 5,979,797 issued to Castellano. A further  
example of an accessory is found in U.S. Pat. Applic.  
5 Public. No. 2002/0014563 of Lucero.

The aforecited patents and other devices known in the  
art generally provide means for relatively rapid delivery  
of material onto a desired surface. However, such devices  
have been problematic in that, for example, the artisan  
10 must perform the fatiguing and sometimes hazardous tasks of  
simultaneously holding and supporting the weight of the  
spray gun and supply hopper while spraying. Repetitive  
stress injuries are likely to occur.

Therefore, there exists a need for an ergonomic hopper  
15 holder which overcomes the drawbacks of the known devices,  
and which reduces fatigue and repetitive stress injuries.

#### ***SUMMARY OF THE INVENTION***

An object of the present invention is to provide an  
20 ergonomic hopper holder which is simple to construct and  
use.

Another object of the present invention is to provide an  
ergonomic hopper holder which reduces fatigue in use.

A further object of the present invention is to provide an ergonomic hopper holder which reduces repetitive stress injuries.

In accordance with the present invention, an ergonomic  
5 hopper holder for use with spray application equipment includes a vertical support member having a holster end, an opposite hopper end, and a hopper hanger proximate to the hopper end. The holder also includes an arm member having a support end, a spray gun end, and a spray gun support  
10 proximate to the spray gun end for supporting a spray gun. The arm member is pivotably joined to the vertical support member. The holder further includes a holster and belt combination capable of being worn by an artisan.

15 ***BRIEF DESCRIPTION OF THE DRAWINGS***

Figure 1 is a perspective illustration of pneumatic spray application equipment of the prior art.

Figure 2 is a perspective illustration of an ergonomic hopper holder, constructed in accordance with the present  
20 invention, before use.

Figure 3 is a perspective illustration of the ergonomic hopper holder of Figure 2, ready for use.

Figure 4 is a perspective illustration of the ergonomic hopper holder of Figures 2 and 3, in use.

Figure 5 is a perspective illustration of an alternative embodiment of the ergonomic hopper holder of Figure 2, constructed in accordance with the present invention, before use.

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#### **DETAILED DESCRIPTION OF THE INVENTION**

Referring to Figure 1, typical pneumatic spray application equipment 100 for liquefied material (e.g., textured ceiling material) of the prior art is depicted.

10 Equipment 100 includes a hand-held spray gun S for application of the liquefied material, along with a supply hopper H for containing a supply of liquefied material (not shown) having a top portion T and a bottom portion B. Spray gun S is coupled to bottom portion B of hopper H, such that  
15 the liquefied material may be fed from hopper H into gun S. Gun S is also pneumatically coupled via air line L to a source of pressurized air such as a portable air compressor C. In use, an artisan A grips spray gun S with one hand, while holding or steadying top portion T of hopper H with his  
20 other hand at handle H'. Artisan A then selectively depresses and holds a trigger (not shown) on gun S to cause pressurized air delivered from compressor C via line L to forcibly spray the liquefied material, being fed from hopper H into gun S, onto a desired surface.

By moving his body, limbs, and hands, artisan A aims the material being sprayed from gun S as desired for uniformly coating a surface. As aforescribed, such movements become fatiguing to artisan A, particularly when hopper H is full  
5 and is therefore relatively heavy (typically, 20-25 lbs.) or when artisan A has been at work for an extended time.

Turning now to Figure 2, there shown is an exemplary embodiment of an ergonomic hopper holder 200 of the present invention ("holder 200") before use. As depicted, holder  
10 200 includes a vertical support member 210, and an arm member 220 pivotably coupled to vertical support member 210.

Vertical support member 210 includes a holster end 212 and an opposite hopper end 214. Member 210 also includes a  
15 hopper hanger 218 proximate to hopper end 214. Hopper hanger 218 may be securely coupled to member 210 by way of, for example, one or more commercially available pipe clamps 219.

Arm member 220 includes a support end 222 and a spray  
20 gun end 224. As aforesaid, arm member 220 is pivotably coupled to vertical support member 210, approximately midway between ends 212 and 214 of member 210, by way of conventional hinge hardware 223 at end 222 of arm member 220. Arm member 220 also includes a spray gun support 225

coupled to end 224. Like hanger 218, support 225 may be secured to member 220 by way of, for example, one or more commercially available pipe clamps, or it may be simply screwed or inserted into member 220 in a force-type fitting  
5 as shown.

Regarding compositions of the aforescribed components of holder 200, vertical support member 210 and arm member 220 are preferably fabricated from commercially available PVC tubing. Alternatively, member 220 may be advantageously  
10 constructed from a simple, solid wood dowel.

Preferred dimensions of member 210 are about 41" in length by about 1.75" in diameter, while member 220 has preferred dimensions of about 12.5" in length by about 1.25" in diameter. Hanger 218 and support 225 may be any  
15 suitable commercially available symmetric utility hook, preferably having lengths of about 3.0" to 4.0", and diameters of about 0.5". Hanger 218, furthermore, may advantageously be bent or otherwise non-linear (not shown) to prevent it from slipping through clamps 219 when under a  
20 load.

Referring now to Figure 3, holder 200 is depicted as being ready for use by artisan A. Holster end 212 of vertical support member 210 is securely held within a holster and belt combination 230 being worn around a waist of

artisan A, as shown in the figure. An optional neck strap 216 may be coupled to vertical support member 210, if desired, to prevent movement of holder 200 when the hands of artisan A are at rest.

5       Turning now to Figure 4, there shown is exemplary holder 200 in use by artisan A. As is to be appreciated with reference to the illustration, hanger 218 engages handle H' in top portion T of hopper H. Also, gun S is engaged by support 225 of pivotable arm member 220. Accordingly, a  
10       significant portion of the weight of the hopper H and gun S combination is borne by holder 200, through hanger 218 and support 225.

      It is to be particularly appreciated that in the exemplary configuration of the present invention, the hand of  
15       artisan A which would otherwise be required to hold and steady hopper H at handle H' is free, thereby reducing fatigue and allowing the hand to be used for other purposes (e.g., holding another working tool or even a cellular  
      telephone). Additionally, since arm member 220 is capable of  
20       pivoting about vertical support member 210, the elevation and orientation of gun S relative to a surface being sprayed may be easily manipulated by artisan A with minimal body movement. The beneficial ergonomic effects of use of holder 200, therefore, should be clearly understood.

Figure 5 depicts an alternative exemplary embodiment of the present invention. Therein, vertical support member 210 of Figs. 2-4 comprises a pair of telescoping, concentric tubes 210a and 210b. In this embodiment, tube 210a has  
5 preferred dimensions of about 41" in length by about 1.75" in diameter, while tube 210b has preferred complementary dimensions of about 19.5" in length by about 1.25" in diameter.

As shown in Fig. 5, tubes 210a-b each have at least one  
10 pair of corresponding holes, to receive a locking pin 240 inserted therethrough so that tubes 210a-b thereby maintain a desired length relationship. In such telescoping manner, tubes 210a-b provide an adjustable length feature to the  
aforedescribed vertical support member. It is to be  
15 particularly appreciated and understood, therefore, that artisans of dramatically differing heights and body shapes may all enjoy the benefits of use of the ergonomic hopper holder of the present invention.

While the present invention has been particularly  
20 shown and described with reference to the accompanying figures, it will be understood, however, that other modifications thereto are of course possible, all of which are intended to be within the true spirit and scope of the present invention. It should be appreciated that components



of the invention aforescribed may be substituted for other suitable components for achieving desired results, or that various accessories may be added thereto.

5 Lastly, the choice, of course, of compositions, sizes, and strengths of various aforementioned components of the present invention are all a matter of design choice depending upon intended uses thereof.

Accordingly, these and other various changes or modifications in form and detail of the present invention  
10 may also be made therein, again without departing from the true spirit and scope of the invention as defined by the appended claims.